



## CASE STUDY

# Integrated leak detection solution restores production for Middle East operator

### The Challenge

A national operator of a mature offshore field in the Middle East suspected a mechanical integrity problem with one of their key oil and gas producer wells, following a recent tubing-to-casing annulus failed inflow test. Because the leak path could not be identified, well production was ceased.

This type of unwanted downhole flow path can have significant consequences, including potential contamination of underground water reservoirs, uncontrolled fluid escapes to surface, poor well performance, loss of production and many other harmful environmental impacts.

READ has 30 years of experience supporting operators across the Middle East. Due to our exceptional track record in well integrity, our unrivalled ANSA data analytics services, and our agile and flexible approach, the client engaged with us to develop an innovative solution to mitigate the integrity problem and accurately locate the leak path. This was a key prerequisite for designing an effective remediation plan and regaining well control.

### The Solution

The READ team discussed the diagnostic criteria of the intervention with the client to fully understand the objectives, and to design an effective yet cost and time-saving methodology. In this case, locating the integrity problem relied on being able to identify the downhole leak path, which is typically a complex and challenging undertaking. We recommended performing a leak detection and tubing integrity survey in a single run, consisting of a multifinger caliper and temperature log combined with Archer LeakPoint® acoustic technology. LeakPoint® is a powerful and proactive diagnostic system for well integrity management that can be logged both dynamically and stationary.

Deploying the technology on slickline, a pressure differential was induced by bullheading gas down the tubing and bleeding off the tubing-to-casing annulus in order to stimulate the leak.

Following one logging run totalling nine operational hours, the READ ANSA data analysis team performed a refined primary barrier assessment, integrating thermal profiling with ultrasound mapping which is critical for a successful leak diagnosis.

### Client Overview

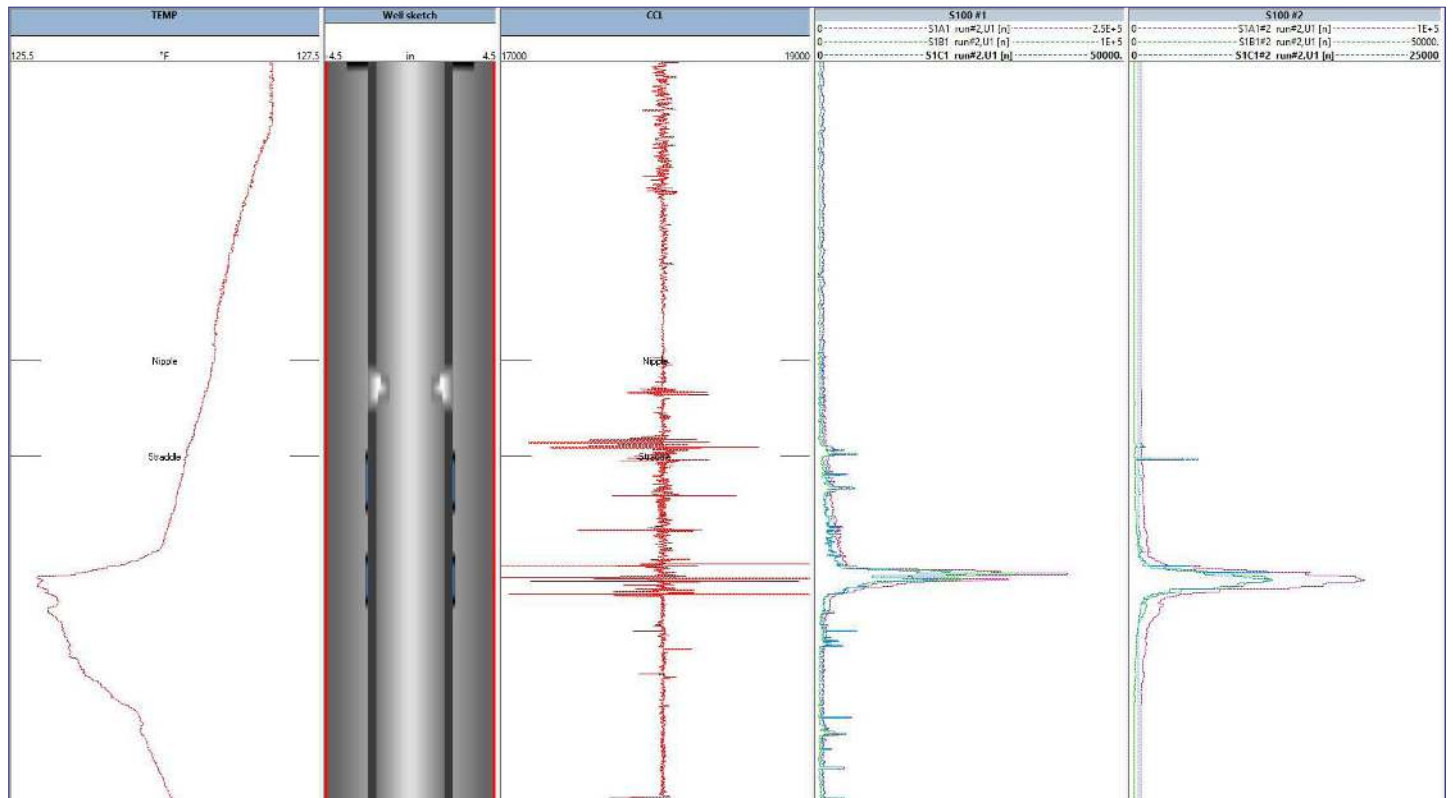
**National operator  
Middle East**

### Services

- Primary barrier leak detection
- ANSA data analytics services

### Technology Involved

- Temperature profiling integrated with Archer LeakPoint® passive acoustic listening platform
- 40-arm multifinger caliper



A flow path was identified that started at the lower element of an existing straddle and leaked into the tubing-to-casing annulus through a tubing collar due to an ineffective seal. Replacing the straddle enabled this integrity issue to be resolved successfully.

## The Results

The caliper data confirmed that the coated tubing was in good condition with no indication of significant metal loss or deposition. The analysis of the acoustic energy and temperature profile indicated a flow path starting from the lower element of an existing straddle and leaking into the tubing-to-casing annulus through a tubing collar.

Crucially, this observation was achieved quickly and accurately by deploying the LeakPoint® system dynamically in conjunction with READ's caliper sensor technology. Our innovative approach resulted in a time saving of more than eight hours and a cost saving of over

\$50,000 for the client, compared to running a conventional station-based acoustic leak detection survey,

The operator then carried out a subsequent remediation where the existing straddle was retrieved and replaced with an effective one, and this enabled the client to remediate the leak and restore well production.

Thanks to our integrated portfolio of technologies and flexible and highly responsive teams, both in the field and at our technology and data hubs, we delivered a truly comprehensive solution for the client.

## Key Results

- Restoration of well production
- Time saving of >8 hours and cost saving of \$50K+ compared to conventional station based acoustic leak detection survey
- Successful collar leak identification with temperature and ultrasound-based technique
- Prompt data analysis enabling in-field decision making for targeted remedial action